

AP22 Screen Commands

This document last edited May 2015 for version 2.90. Some commands may not be available in previous versions of firmware.

Instructions

To start any of the command screens below you simply type the screen number on the keypad from the main screen. At any point you can return to the main screen by pushing the '#' button a few times.

Screen '01'

Manual Control. This screen allows you to manually control a relay on or off. The relay will stay in the programmed condition until a calendar event that is different from it is processed.

Screen '03'

Set Time. This screen allows you to Set the hour and minute. When you press the '*' key the seconds of the time switch is set to zero.

Screen '04'

Date of Week. In all version of AP22 4.04 or earlier this screen allows you to set the day of week. In CP22 versions this screen is not needed as the time switch correctly enters the day of week based on the date entered.

Screen '07'

Daylight Savings Setup. This screen allows you setup the daylight savings time to run in the time switch. You enter the month and the weekend you wish the time switch to enter or exit DST. The US standards are spring month 3, weekend 2 and fall month 11, weekend 1.

To disable DST you enter the spring month as zero.

If you are in a WIFI, radio or other communicating network the DST is handled by the central computer.

Screen '0A'

Annual Plan Programming. This screen allows you to enter annual plans. These plans declare a date range and a dayplan that will run in this date range. If you want the clock to not activate any relays then select dayplan 0. There are 36 annual plans from plan 0 to plan 35.

Annual plans should not overlap as the time switch will not run as you desire it. The time switch typically runs the dayplan of the first annual plan it finds that is valid for the day. If there are other annual plans later that are in the same range they will not be used.

Screen '0B'

Dayplan setup. This screen allows you to setup a dayplan. The dayplan number can run from 1 – 9. Each dayplan consists of up to 16 steps. The steps are the times when you want the relays to change to the programmed state.

Screen '0C'

Default Plan Setup. This screen is where you select which dayplan will run on any given day of week. Typically Sat and Sun are set to zero and Mon – Fri are set to 1. However if you desire dayplan 2 to run on Wednesday then you would select that day in the menu and program the dayplan to 2.

Screen '0D'

Date Setup. This screen allows you to setup the date for the time switch.

Screen '22'

Time Switch Address. This screen is where you program the address of the time switch. If the timeswitch is not in a Radio or WIFI network then you can leave this set to MG = 0 GP = 0 and LOC = 0. For radio or WIFI networks this number needs to be unique in the network.

MG stands for Master Group. This is typically 1.

GP stands for Group. A Group is a collection of up to 99 time switches that have the same scheduling and programming. This number should be from 1 – 99.

LOC stands for location number. This number uniquely defines a time switch within a group. This number should be from 1 – 99.

Typically all time switches in a school are in the same group. Once you have more than 99 groups then you can start using Master Group 2.

Some users make a group for each school. The northbound time switch is 1, east 2, south 3, west 4. If there are more time switches then continue the pattern.

Screen '30'

GPS Status. This screen tells you the status of the optional GPS device attached to the connector on the AP22. This device will set the time in the AP22 whenever it drifts more than 10 seconds away from the GPS satellite constellation.

This is used for stand alone AP22 devices only. The AP22 must have the CP22 chip in it for this option to work. To find out if the AP22 has this version use command '99'.

The screen will report 'Not Receiving.' When there is no GPS receiver attached.

When the receiver is attached it will show you a counter for each data packet received from the GPS receiver. The screen will show this. 'Receiving 14'. This will increment about once per second with each transmission from the GPS receiver. It can take as long as five minutes for the GPS receiver to lock on to a satellite, however it typically takes less than 30 seconds when it has been powered up recently.

Once the time is being read from the GPS receiver the display will show 'GPS Locked' and display the current time and date.

If the time is incorrect you likely have the Time Zone parameter setup incorrectly. See screen '31'.

Screen '31'

Time Zone. This is where you enter in how many hours you are away from UTC time. The typical US timezones are shown below.

EST -5
CST -6
MST -7
PST -8

You enter this number whether you are in DST or not as this is the offset from UTC time without regard to daylight saving time.

If you have a stand alone system with GPS you need to have this parameter set correctly to your timezone.

Screen '32'

DST Debug. This screen displays several debugging and information lines about DST and your programming. It tells you the date DST starts, Date DST ends and whether or not the time switch thinks it is currently inside daylight savings time.

Screen '35'

Start Time. This displays the date and time the time switch was powered up. This also displays the last time the AP22 had a download to it.

Screen '37'

Modem Time. When an AP22 has a modem attached to it the time of the cellular network can be displayed. This command queries the modem for its tower time. If the modem is connected to the tower then this time is set in to the AP22.

The best way to use this command is to set the AP22 using command '03' to a time it is not. For example you set the time to 12:00 AM. Then hit command '37' and the time should then adjust very quickly to the tower time. If the time continues to be 12:00 AM then the modem is not connected to the network. If the time is correct to the minute but the hour is off then you likely have the wrong time zone in your AP22. You can adjust the timezone using command '32'.

Screen '38'

Modem Power. When an AP22 has a modem attached to this command tells you the modem cell power. This number is in db and ranges from -101 through -40 with -40 being much better than -101.

This command is useful when moving antennas around to get the position of the antenna for best signal strength.

Screen '39'

IMSI, IMEI and Network Registration (CREG). This screen allows the user to view the IMSI and IMEI number of the attached modem. It also displays whether or not the modem is registered on the network. If the modem is not registered on the network no communication is possible.

Screen '40'

Sunrise and Sunset time. When an AP22 has latitude and longitude programmed in to it will calculate the sunrise and sunset time for this position on the map. Longitude and Latitude are entered using command '41' or command '42'. GPS coordinates used are in decimal degrees as compared to 'degrees minutes and seconds'. There are many conversion utilities on the web to convert. Many cell phones present your position in degrees minutes and seconds.

Screen '41'

Latitude and Longitude. This screen allows you to edit the latitude and longitude of the AP22. These coordinates used are in decimal degrees as compared to 'degrees minutes and seconds'. There are many conversion utilities on the web to convert from DMS to Decimal degrees. Many cell phones present your position in degrees minutes and seconds.

The latitude is displayed in degrees North. The longitude is displayed in degrees West.

This information is used to calculate the sunrise and sunset times. You can command relay turn on and off times relative to both sunrise and sunset. In order for these commands to work you must have the latitude and longitude correct as well as your timezone correct.

Screen '42'

Read GPS Coordinates. This screen allows you read the latitude, longitude and time from a modem equipped with a GPS receiver. This command is best tested by setting the latitude to some number like 10. You then command the read and see if the GPS coordinate changes to your position.

This command also sets the time in the AP22 according to the cell tower or the GPS receiver.

Screen '77'

Data Clear. This allows you to clear all the programming from time switch. On earlier models it even erased the time, date and day of week. On CP22 models the timing information stays. All other steps, plans, annual plans and default plans are erased.

Screen '78'

Data Transfer. This allows you to transfer the programming from one AP22 with another. Simply connect the 2 AP22s with the RTC cable part number 504558. The transfer is then takes place when you press the key '*'.

Screen '79'

Reset AP22. This command allows you warm reboot the AP22. The command tells the AP22 to restart itself. It is useful when reaching the power supply is difficult and you want to affirm changes are retained through a power cycle.

Screen '90'

Status. This shows you the dayplan that is running and which annual plan, if any that is active. If the phrase 'Exception XX' is shown then no annual plans is active.

Screen '99'

Version. This screen shows the version of code you are running.

Screen 'CA'

Clear Annual. This screen allows you to clear all annual plan programming leaving the dayplans and default plans intact.

Screen 'CB'

Clear Dayplans. This screen allows you to clear all dayplans leaving the annual plans intact.

Screen 'DA'

Digital Adjust. If the AP22 has a 3G modem with data mode then this screen allows you to connect to the server and reprogram the device with the latest code. A typical use of this is to set the time incorrect on the AP22, then program the DA command, wait about a minute and if it all works then the servers will correct the time in the AP22.

Screen 'DB'

This screen shows the server connection information for 3G Data mode. This information is required for the 3G connection to work. You can enter this information in to the timeswitch using RTC Connect CPR4 Loader. If the modem is setup correctly then this can also be done inside connect using the 3G Data command.

Screen 'DC'

This screen shows the voltages on rev E boards. The four voltages shown and battery, solar panel, flash1, and flash2.